Yichong SUN

The Chinese University of Hong Kong
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Education

The Chinese University of Hong Kong
Ph.D. in Medical Robotics, 2022.08 - Current
Faculty of Medicine
Supervisor: Prof. Li Zheng and Prof. Yip Honchi

Harbin Institute of Technology
M.Sc. in Mechanical Engineering, 2020.09 - 2022.07
School of Mechatronics Engineering

Chongqing University
B.Eng. in Mechanical Design and Automation, 2016.09 - 2020.07
College of Mechanical and Vehicle Engineering

Interests

Medical Robotics
System Design and Control
Learning Method for Robotic-Assisted Surgery

Teaching

Teaching Assistant for MSc course (BMEG 5750)
Medical Robotics, The Chinese University of Hong Kong, 2023-2025

Selected Publications

1. **Y. Sun**, Y. Xian et al. A MagsL-HUD Endoscopic System for Magnetic Compression Anastomosis Surgery in Unstructured Endoluminal Environment. *IEEE Transactions on Robotics*, 2025

2. **Y. Sun**, R. Xu et al. A Novel Wireless Magnetic Leader Device for Six-DoF Robotic Teleoperation Control with Expandable Workspace. *IEEE Transactions on Automation Science and Engineering*, 2025

3. **Y. Sun**, L. Li et al. Design and In-Vivo Validation of Clinically Wireless Localization System for Magnetic Robots: A Reconfigurable Sensor Array Approach. *IEEE/ASME Transactions on Mechatronics*, 2025

4. R. Xu, **Y. Sun** et al. Whole-Body Model Predictive Control for Magnetically Actuated Robotic Endoscope. *IEEE/ASME Transactions on Mechatronics*, 2025

5. Y. Xian, **Y. Sun** et al. Task Automated Stereotactic Brain Biopsy Robotic System with CLF-CBF-Based Safety-Critical Neuronavigation. *IEEE/ASME Transactions on Mechatronics*, 2025

6. L. Nie, H. Wang, **Y. Sun**. Switched LPV Resilient Tracking Control for Rigid-Body with Defective Actuators and Sensors. *Journal of the Franklin Institute*, 2025

7. **Y. Sun**, W. Chan et al. An Octopus-Inspired-Configuration Sensor Array Concept toward Torso-Oriented Magnetic Localization Task and Simulation Verification. *IEEE/RSJ IROS*, 2024

8. W. Chan, **Y. Sun** et al. Robotic Flexible Magnetic Retractor for Dynamic Tissue Manipulation in Endoscopic Submucosal Dissection. *IEEE ICRA*, 2025

9. X. Ren, T. Pan, **Y. Sun** et al. Simultaneous Locomotion with Stiffness Perception of an Earthworm-Like Robot in a Soft Tubular Environment. *Soft Robotics*, 2025

10. Y. Li, WY. Ng, **Y. Sun** et al. Colon Lumen Center Detection Enables Autonomous Navigation of an Electromagnetically Actuated Soft-Tethered Colonoscope. *IEEE Trans. on Instrumentation and Measurement*, 2024

11. **Y. Sun**, M. Xie et al. Design and Control of Deformable Quadrotor with Varying Length Arms. *Science China Technological Sciences*, 2023

12. **Y. Sun**, Y. Li et al. Model-Based Bending Control of Magnetically-Actuated Robotic Endoscopes for Automatic Retroflexion in Confined Spaces. *IEEE/RSJ IROS*, 2023

13. **Y. Sun**, B Cai, et al. Bumpless Transfer Control for a Class of Hybrid Stochastic Systems and Application to Electromagnetic Oscillation Circuit. *IECON 2021*, 2021

US Patents

1. A wirelessly magnetic location-aware system using reconfigurable sensor array technique. *Status: Pending*

2. System and method for endoluminal magnetic compression anastomosis. *Status: Pending*

3. System and method for endoluminal tissue manipulation. *Status: Pending*

4. System and method for automatic stomach screening. *Status: Pending*

Selected Honors

- Gold Medal, 49th International Exhibition of Inventions of Geneva (First Author)

- Third Prize, 10th Hong Kong University Student Innovation and Entrepreneurship Competition (Team Leader)

- Silver Medal, 49th International Exhibition of Inventions of Geneva (Second Author)

- National First Prize, 14th National Undergraduate NXP Smart Car Competition

- Outstanding Graduate, Chongqing University, Class of 2020

- Excellent Graduate Student Leader, Chongqing University, Class of 2020